SONY

ELECTRONIC VIEWFINDER

BVF-20W
BVF-20WCE

MAINTENANCE MANUAL
1st Edition
Serial No. 10001 and Higher (BVF-20W)
Serial No. 40001 and Higher (BVF-20WCE)

⚠ 警告

このマニュアルは，サービス専用です。
お客様が，このマニュアルに記載された設置や保守，点検，修理など行うと感電や火災，人身事故につながることがあります。
危険をさけるため，サービストレーニングを受けた技術者のみご使用ください。

⚠ WARNING

This manual is intended for qualified service personnel only.
To reduce the risk of electric shock, fire or injury, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so. Refer all servicing to qualified service personnel.

⚠ WARNUNG

Die Anleitung ist nur für qualifiziertes Fachpersonal bestimmt.
Alle Wartungsarbeiten dürfen nur von qualifiziertem Fachpersonal ausgeführt werden. Um die Gefahr eines elektrischen Schlages, Feuergefahr und Verletzungen zu vermeiden, sind bei Wartungsarbeiten strikt die Angaben in der Anleitung zu befolgen. Andere als die angegeben Wartungsarbeiten dürfen nur von Personen ausgeführt werden, die eine spezielle Befähigung dazu besitzen.

⚠ AVERTISSEMENT

Ce manual est destiné uniquement aux personnes compétentes en charge de l'entretien. Afin de réduire les risques de décharge électrique, d'incendie ou de blessure n'effectuer que les réparations indiquées dans le mode d'emploi à moins d'être qualifié pour en effectuer d'autres. Pour toute réparation faire appel à une personne compétente uniquement.

X-RAY RADIATION WARNING

Be sure that parts replacement in the high voltage block and adjustments made to the high voltage circuits are carried out precisely in accordance with the procedures given in this manual.

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Manual Structure

Purpose of this manual

This manual is the maintenance manual for Electronic Viewfinder BVF-20W/20WCE.
This manual describes the information items necessary when the unit is supplied and installed, items that premise the service based on the components parts such as alignment, schematic diagrams, board layouts and spare parts lists, assuming use of system and service engineers.

Contents

This followings are summaries of the each section for understanding the manual.

Section 1 Service Overview

Describes information about board locations, connector input/output signals, cleaning, replacement of CRT.

Section 2 Electrical Alignment

Describes general information for electrical adjustments and the adjustments procedures of this unit.

Section 3 Spare Parts

Describes parts list, exploded views, supplied accessories list used in the unit.

Section 4 Semiconductor Pin Assignments

Describes function diagrams and pin names of semiconductor used in the unit.

Section 5 Diagrams and Board Layouts

Describes overall block diagram, frame wiring and board layouts for every circuit board.

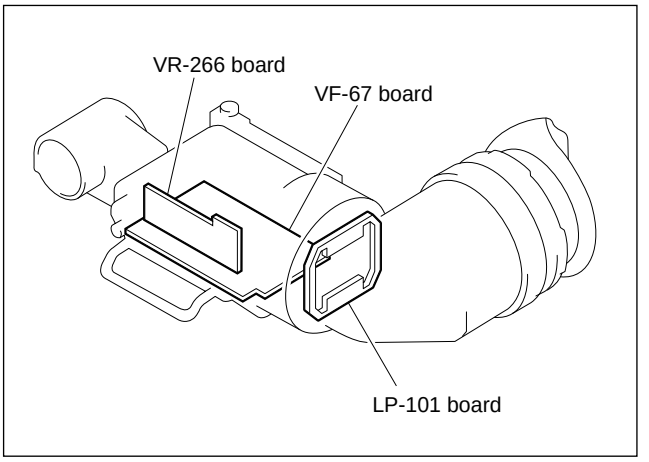
Relative manual

Besides this maintenance manual the following manual is available for this unit.

- **Operation Manual (Supplied with this unit)**
  This manual is necessary for application and operation of this unit.

Section 1
Service Overview

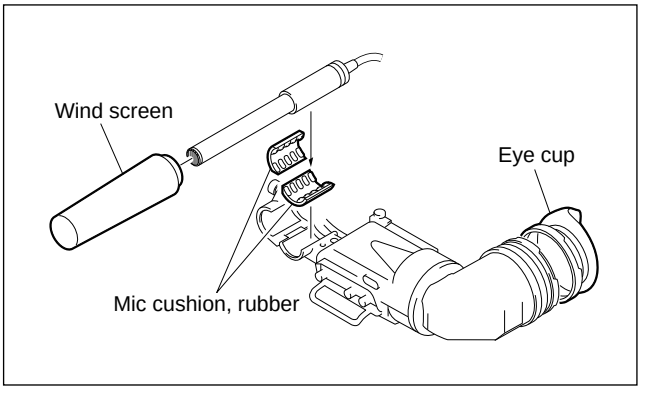
1-1. Location of Printed Circuit Boards



1-2. Periodic Replacement Parts

Parts listed below are periodic replacement parts. They are subject to cracks with the lapse of time. Check sometimes by visual, and replace as necessary.

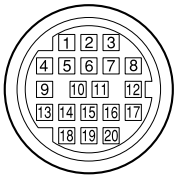
Name	Sony Part No.
Wind screen	3-709-096-0X
MIC cushion, rubber	3-692-138-0X *1
Eye cup (S)	3-723-079-0X



*1 It is recommended that the MIC cushions are replaced in pairs. In this case, please order two pieces.

1-3. Connector Input/Output Signals

VF (20P MALE)



(External view)

Pin No.	Signal	I/O	Specifications
1	VTR SAVE IND	IN	GND:Indicator lights OPEN:Indicator goes out
2	ABNORMAL IND	IN	GND:Indicator lights OPEN:Indicator goes out
3	16:9 MODE	IN	GND:16:9 OPEN:4:3
4	REC (L) IND	IN	9 V:Indicator lights GND or OPEN:Indicator goes out
5	NC		
6	CCIR/EIA	IN	9.3 V:CCIR GND:EIA
7	DISPLAY	OUT	ON:OPEN OFF:GND
8	G TALLY	IN	5 V:Indicator lights GND or OPEN:Indicator goes out
9	NC		
10	NC		
11	ZEBRA	OUT	ON:GND OFF:5 V
12	VF VIDEO (X)	IN	1.0 V p-p Zi = 75 Ω
13	NC		
14	NC		
15	NC		
16	BATT IND	IN	5 V:Indicator lights GND or OPEN:Indicator goes out
17	TALLY IND	IN	9 V:Indicator lights GND or OPEN:Indicator goes out
18	+ 9.3 V(VF)	IN	REG + 9.3 V
19	GND		GND
20	NC		

This unit normally operates with the above input signals. Cameras described in this manual can output the signals satisfying the specifications.

1-4. Cleaning

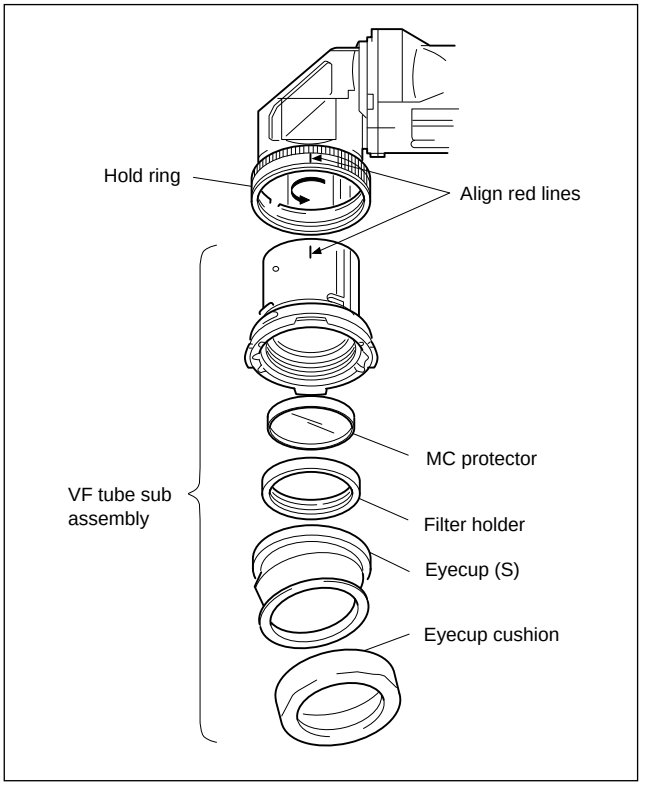
1-4-1. Cleaning of Viewfinder

By extracting VF tube sub assembly, lens and MC protector can be easily cleaned. And also dust on the CRT surface or mirror can be easily cleaned off.

1. Turn the hold ring to the left and extract the VF tube sub assembly.
2. Detach the eyecup.
3. Remove the MC protector with a commercially available camera lens cleaner. Blow off dust with a blower carefully so as not to flaw the mirror.
4. After the cleaning is completed, install by reversing the preceding steps. Align red lines of the VF tube and VF tube sub assembly when inserting, and turn the hold ring to the right until it locks.

Note

- Do not use any type of solvent, such as alcohol, benzine or thinner to remove stains.
- Be sure to attach the eyecup to the VF, or the MC protector may come off.
- To protect the viewfinder lens from drops, put the MC protector in the filter holder and attach the eyecup securely.



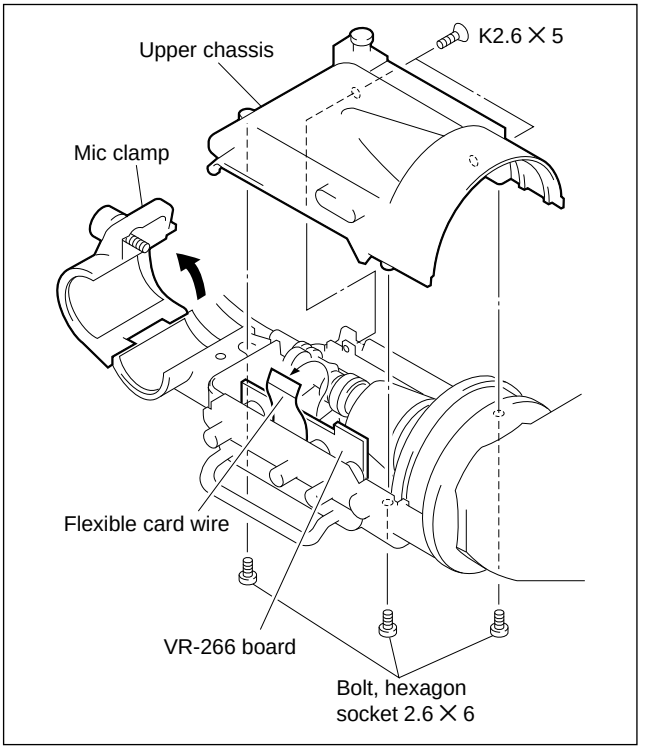
1-4-2. Care After Using at Special Environment

It is recommended to check the following items after gathering the news at seaside, dust area or spa.

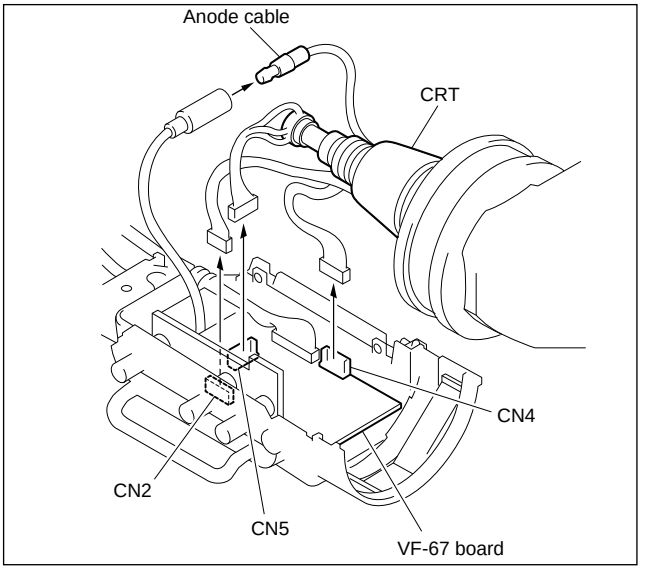
1. Clean off sand and other dust in the unit carefully.
2. Do not allow salt in seawater or sulfur in spa to contact a not-painted surface of the cabinet. They may cause to corrode. Clean with alcohol immediately if contacted.
3. Clean the connection surface of connectors.
4. Carry out the common operation check.

1-5. Replacement of CRT

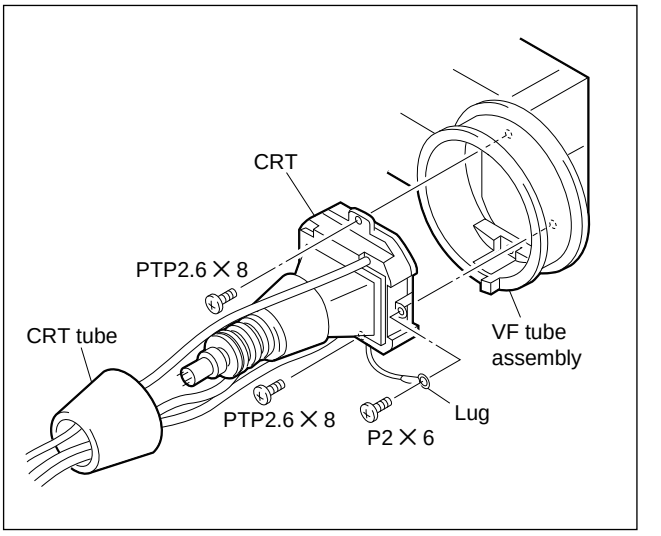
1. Loosen the screw of the MIC clamp and open the MIC clamp.
2. Remove the two screws (K2.6 × 5).
3. Remove the three hexagonal socket bolts (2.6 × 6) and remove the upper chassis.
4. Disconnect the flexible card wire of the VR-226 board. (How to disconnect the flexible card wire, refer to Section 1-6.)



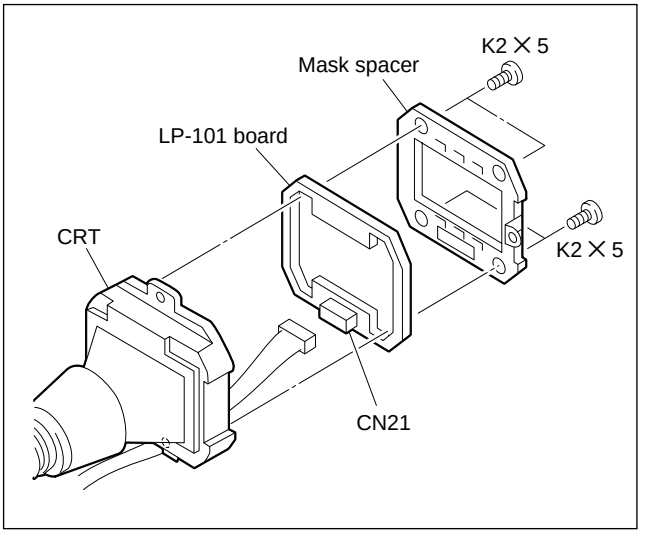
5. Disconnect the four connectors CN2, CN4, CN5 and anode cable of the VF-67 board.



6. Remove the three screws and remove the CRT from the VF tube assembly.
7. Remove the CRT tube from the CRT.



8. Remove the four screws (K2 × 5) and remove the mask spacer.
9. Disconnect the connector CN21 on the LP-101 board.



10. Install a new CRT in the reverse procedures of removal.

Note

When installing the upper chassis, take care not to clamp the harness between upper and lower chassis.

1-6. Disconnecting/Connecting Flexible Card Wire

The flexible card wire is used between the VF-67 board and VR-226 board. Take care not to break this flexible card wire. This shorten the wire life.

Disconnecting

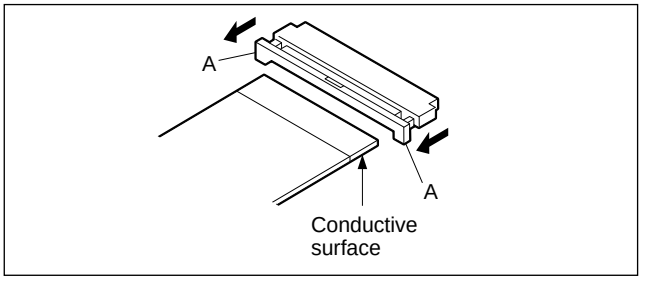
1. Turn off the power.
2. Slide portions A in the direction of the arrow to unlock and pull out the flexible card wire.

Connecting

Note

- Be careful not to insert the flexible card wire obliquely.
- Check that the conductive surface of the flexible card wire is not soiled with dust.

1. Slide portions A in the direction of the arrow and insert the flexible card wire as far as it will go with the conductive surface down.
2. Slide portions A in the reverse direction to lock.



1-7. Notes on Spare Parts

1. Safety Related Components Warning

Components marked ⚠ are critical to safe operation. Therefore, specified parts should be used in the case of replacement.

2. Standardization of Parts

Some spare parts supplied by Sony differ from those used for the unit. These are because of parts commonality and improvement.
Parts list has the present standardized repair parts.

3. Stock of Parts

Parts marked with “o” at SP(Supply Code) column of the spare parts list may be not stocked. Therefore, the delivery date will be delayed.

4. Units Representation

The following represented units are changed or omitted in writing.

Units		Representation
Capacitance	µF	uF
Inductance	µH	uH
Resistance	Ω	Abbreviation
Temperature	°C	XXX-DEG-C

5. Destination Representation

The part indicated “For J/UC/EK” in the spare parts list is used in the unit written below.
For UCJ : The part is used in a unit for U.S.A. , Canada and Japan.
For CE : The part is used in a unit for regions except the above countries.

Section 2
Electrical Alignment

2-1. General Information for Electrical Adjustment

2-1-1. Notes on Adjustment

1. When performing adjustment, read throughly the following comments.
   - The calibration of all measuring equipment should be completed.
   - Peripheral equipment (camera, and others) alignment should be completed.
   - "2-1-4. Settings for adjustment" should be completed.
   - Turn off the power before extending the plug-in board using the extension board.

WARNING

There is a danger of an electric shock around the CRT due to high voltage. Therefore, do not touch the CRT.
Be very careful when service in a live.

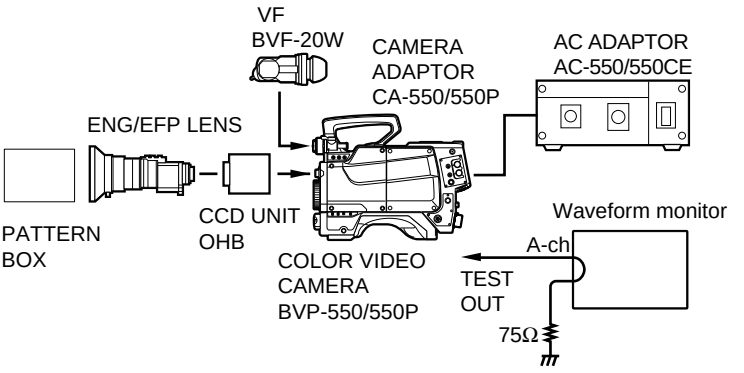
2. Change the Picture Frame mode (4:3/16:9)
   - When the unit is put into the 16:9 mode, set as follows.
     1) Extend the AT-95 board of BVP-550 with EX-464 extension board.
     2) Short between pins 76 and 100 on the EX-464 board using a shorting clip.
   - When the unit is put into the 4:3 mode, disconnect the shorting clip as above.

2-1-2. Equipment/Fixtures

- Color video camera
  BVP-550/550P
- CCD unit
  OHB-450/550 series
- Camera adaptor
  CA-550/550P
- AC adaptor
  AC-550/550CE or equivalent
- Oscilloscope
  Tektronix 2465B or equivalent
- Waveform monitor
  Tektronix 1750/1751 or equivalent
- B/W monitor
- Digital voltmeter
- Frequency counter

Fixtures	Sony P/N
Pattern box "PTB-500"	J-6026-140-B
Resolution chart (4:3)	J-6026-100-A
Resolution chart (16:9)	J-6394-320-A
VF extension harness	J-6395-050-A
Extension board "EX-464" (For BVP-550/550P)	J-6395-040-A

2-1-3. Connections



2-1-4. Settings for adjustment

Set switches and each item through the setup menu as follows before adjustment.

Setup menu :

- Execute the Scene File Standard.
  MENU : Paint
  PAGE : Scene File (Page 8)
  ITEM : Standard
  Press the MENU SEL switch on the front panel to execute the Scene File Standard.

(To be continued)

• Set each item through the setup menu as follows. (Refer to the Operation Manual to operate the setup menu.)

MENU : Operation
PAGE : Gain Sw (Page 3)
ITEM : Low → 0 dB
ITEM : Middle → 9 dB
ITEM : High → 18 dB

Side Panel :

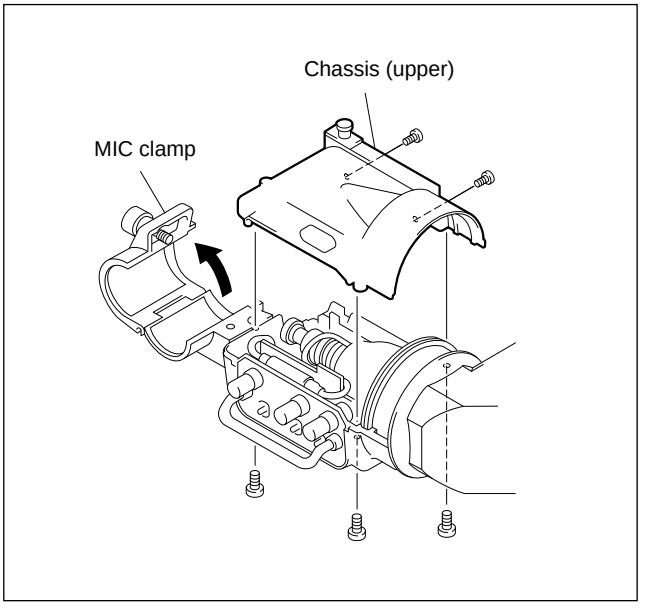
VTR SAVE/STBY switch → STBY
GAIN switch → L (0 dB)
OUTPUT/DCC switch → CAM/OFF
WHITE BAL switch → PRST

Front Panel :

SHUTTER switch → OFF

2-1-5. Extending viewfinder

1. Turn off the power switch on the camera before performing adjustment.
2. Remove the viewfinder from the camera, then remove the chassis (upper)



3. Connect the viewfinder to the camera using the VF extension harness (J-6395-050-A) .
4. Turn on the main power switch.

2-2. Vertical Hold Adjustment

Preparation

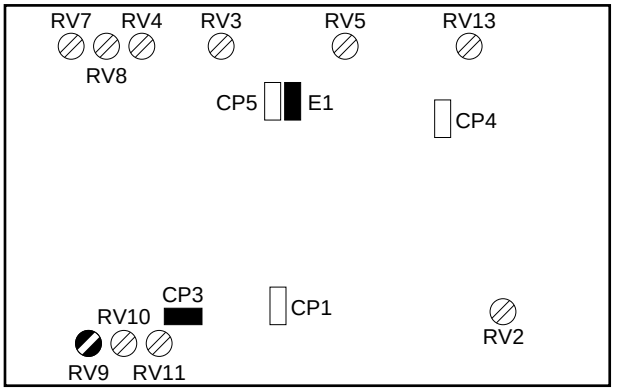
- Extend the IF-510 board of BVP-550/550P with EX-464 extension board.
- Short between pins 45 and 92 on the EX-464 board using a shorting clip.

Adjustment Procedure

1. Equipment : Frequency counter
   Test point : CP3/VF-67
   GND : E1/VF-67
   Adjustment point : ◓RV9 (V-HOLD) /VF-67
   Specification : 48.0 ±0.5 Hz (For NTSC)
   38.0 ±0.5 Hz (For PAL)

Setting after adjustment

- Disconnect the shorting clip on the EX-464 board.
- connect the IF-510 board to the camera.



VF-67 BOARD (A SIDE)

2-3. Horizontal Hold Adjustment

Preparation

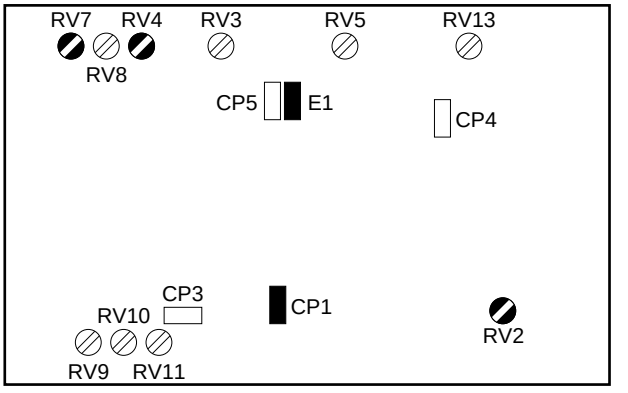
- Extend the IF-510 board of BVP-550/550P with EX-464 extension board.
- Short between pins 45 and 92 on the EX-464 board using a shorting clip.

Adjustment Procedure

1. Equipment : Frequency counter
   Test point : CP1/VF-67
   GND : E1/VF-67
   Adjustment point : ⊘RV7 (H-HOLD) /VF-67
   Specification : 15.73 ±0.05 kHz (For NTSC)
   15.63 ±0.05 kHz (For PAL)

Setting after adjustment

- Disconnect the shorting clip on the EX-464 board.
- connect the IF-510 board to the camera.



VF-67 BOARD (A SIDE)

2-4. Bright Set Adjustment

Preparation

- Set to the 4:3 mode.
- OUTPUT/DCC switch (on the camera side panel) → BARS/OFF
- BRIGHT control → Fully counterclockwise
- CONTRAST control → Fully clockwise

Adjustment Procedure

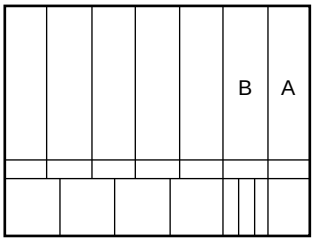
1. Adjustment point : ⊘RV2 (SUB BRIGHT) /VF-67
   Specification : Refer to lower figure

2. Set to the 16:9 mode.

3. Adjustment point : ⊘RV4 (SUB BRIGHT WIDE) / VF-67
   Specification : Refer to lower figure

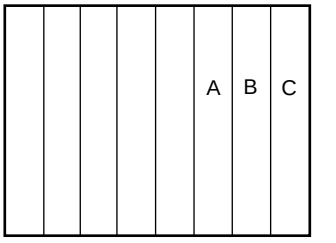
For NTSC model

Spec. : Adjust ⊘RV2 (⊘RV4) so that portions A and B on the viewfinder screen can be barely discriminated.



For PAL model

Spec. : Adjust ⊘RV2 (⊘RV4) so that portions A and B on the viewfinder screen can be barely discriminated, and portions B and C cannot be discriminated.



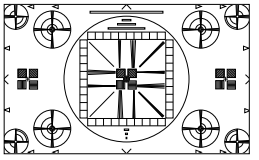
2-5. Focus Adjustment

Note

This adjustment, “2-6. Heater Voltage Adjustment” and “2-7. Picture Frame Adjustment” affect each other. Therefore, repeat these adjustments until these specifications are satisfied.

Preparation

- Set to the 16:9 mode.
- Shoot the resolution chart (16:9) so that the chart frame is aligned with the underscanned monitor frame.
- Adjust the iris of the lens so that the output level (peak-to-peak) at TEST OUT connector/BVP-550.
  Spec. : 70 ±2 IRE (for NTSC)
  490 ±14 mV (for PAL)



(Viewfinder screen)

- BRIGHT control → Mechanical center
- CONTRAST control → Mechanical center

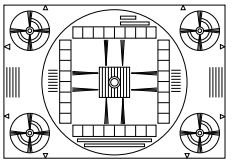
Adjustment Procedure

1. Adjustment point : ⊘RV5 (FOCUS) /VF-67
   Specification : Turn ⊘RV5 fully counterclock wise, and slowly turn it clockwise to adjust the best focus position.

2. Confirm that the focus operation can be performed irrespective of its BRIGHT and CONTRAST controls setting.

3. Set to the 4:3 mode.

4. Set camera and viewfinder as follows.
   - Shoot the resolution chart (4:3) so that the chart frame is aligned with the underscanned monitor frame.
   - Adjust the iris of the lens so that the output level (peak-to-peak) at TEST OUT connector/BVP-550.
     Spec. : 70 ±2 IRE (for NTSC)
     490 ±14 mV (for PAL)



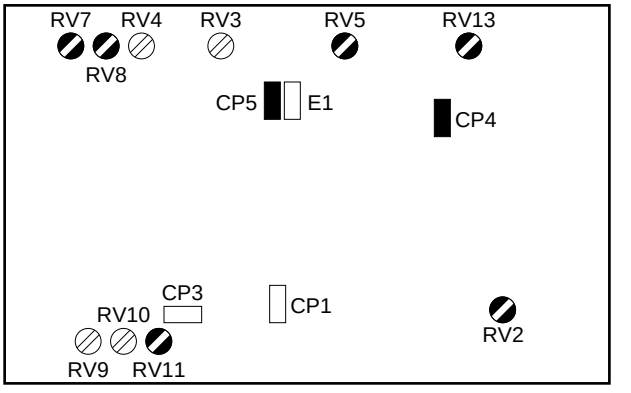
(Viewfinder screen)

   - BRIGHT control → Mechanical center
   - CONTRAST control → Mechanical center
   - Confirm that the focus operation can be performed.

5. Equipment : Digital voltmeter
   Test point : TP2/VF-67
   Adjustment point : ⊘RV2 (OPAMP-ADJ) /VF-67
   Specification : 6.0 ±0.2 V dc

Note

After adjustment is completed, confirm that the focus operation can be performed irrespective of its BRIGHT and CONTRAST controls setting.



VF-67 BOARD (A SIDE)

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2-6. Heater Voltage Adjustment

Note

This adjustment, “2-5. Focus Adjustment” and “2-7. Picture Frame Adjustment” affect each other. Therefore, repeat these adjustments until these specifications are satisfied.

Preparation

- Set to the 4:3 mode.
- BRIGHT control → Mechanical center
- CONTRAST control → Mechanical center
- PEAKING control → Mechanical center
- Iris of the lens:Close

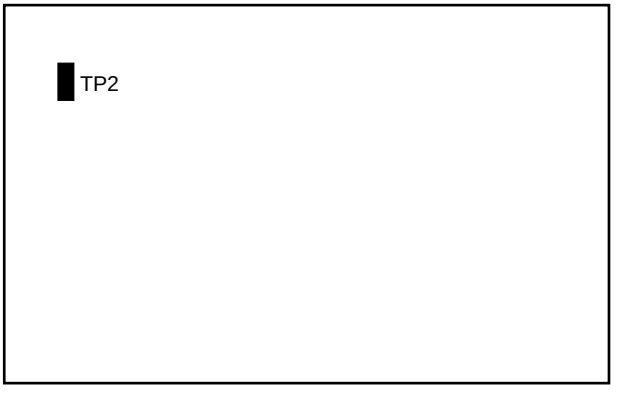
Adjustment Procedure

1. Equipment : Digital voltmeter
   Test point : CP4 (H1)/VF-67
   CP5 (H2)/VF-67
   Adjustment point : ⊘RV8 (VH-ADJ) /VF-67
   Specification : 635 ±15 mV dc

2. Confirm that the specification is met and horizontal noise irrespective of its BRIGHT, CONTRAST and PEAKING controls setting.

3. Set to the 16:9 mode.

4. Confirm that the specification is met and horizontal noise irrespective of its BRIGHT, CONTRAST and PEAKING controls setting.



VF-67 BOARD (B SIDE)

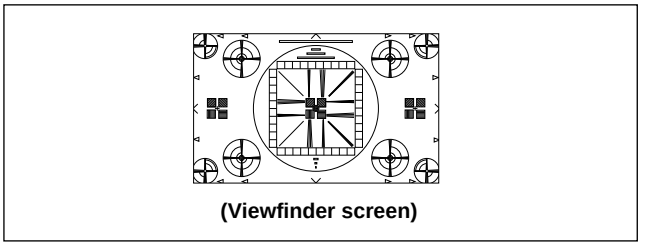
2-7. Picture Frame Adjustment

Note

This adjustment, “2-5. Focus Adjustment” and “2-6. Heater Voltage Adjustment” affect each other. Therefore, repeat these adjustments until these specifications are satisfied.

Preparation

- Set to the 16:9 mode.
- Shoot the resolution chart (16:9) so that the chart frame is aligned with the underscanned monitor frame.
- Adjust the iris of the lens so that the output level (peak-to-peak) at TEST OUT connector/BVP-550.
  Spec. : 70 ±2 IRE (for NTSC)
  490 ±14 mV (for PAL)

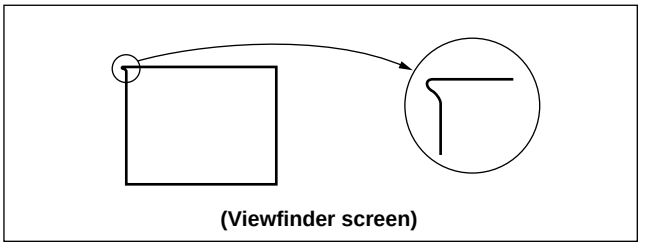


(Viewfinder screen)

- BRIGHT control → Mechanical center
- CONTRAST control → Mechanical center

Adjustment Procedure

1. Adjustment point : ⊘RV7 (H-HOLD) /VF-67
   Specification : If the upper left corner of the picture is distorted, makes right angle.

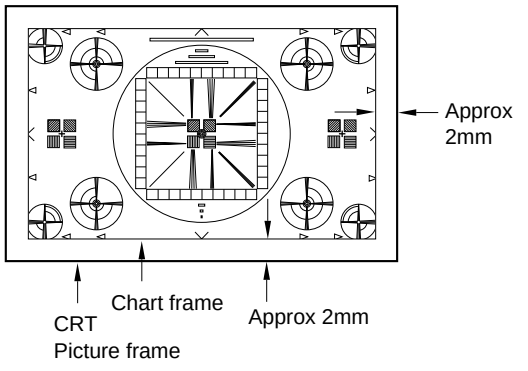


(Viewfinder screen)

2. Adjustment point : ⊘RV11 (V-LIN) /VF-67
   ⊘RV13 (H-LIN) /VF-67
   Specification : Minimize the distortion of the four circles at the corners of the resolu tion chart.

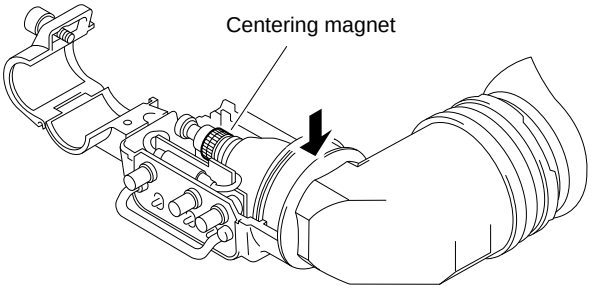
(To be continued)

3. Adjustment point : ⊘RV4 (H-SIZE WIDE) /VF-67
   ⊘RV10 (V-SIZE) /VF-67
   ⊘Centering magnet
   Specification : Adjust ⊘RV4 and ⊘RV10 so that the position of the resolution chart are as shown below.
   Turn the centering magnet only when the left and lower corners cannot be adjusted.



(Viewfinder screen)

4. Place the VF tube to the lower chassis as shown below, and confirm that the picture is in the center of the viewfinder in the normal installing position.



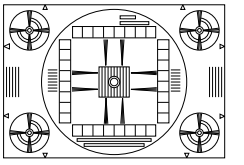
Note

When the centering magnet is turned, paint-lock it again.

5. Set to the 4:3 mode.

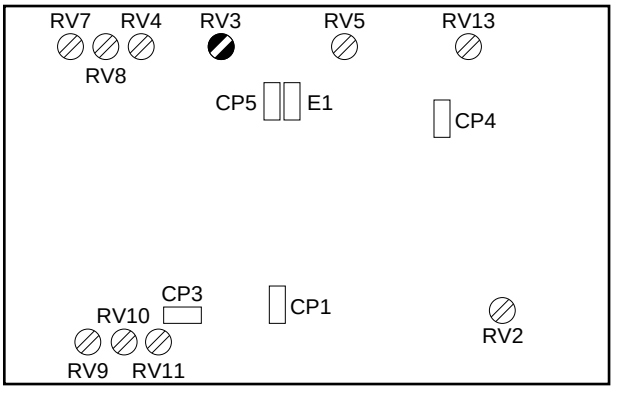
6. Shoot the resolution chart (4:3) so that the chart frame is aligned with the underscanned monitor frame.

7. Adjust the iris of the lens so that the output level (peak-to-peak) at TEST OUT connector/BVP-550.
   Spec. : 70 ±2 IRE (for NTSC)
   490 ±14 mV (for PAL)



(Viewfinder screen)

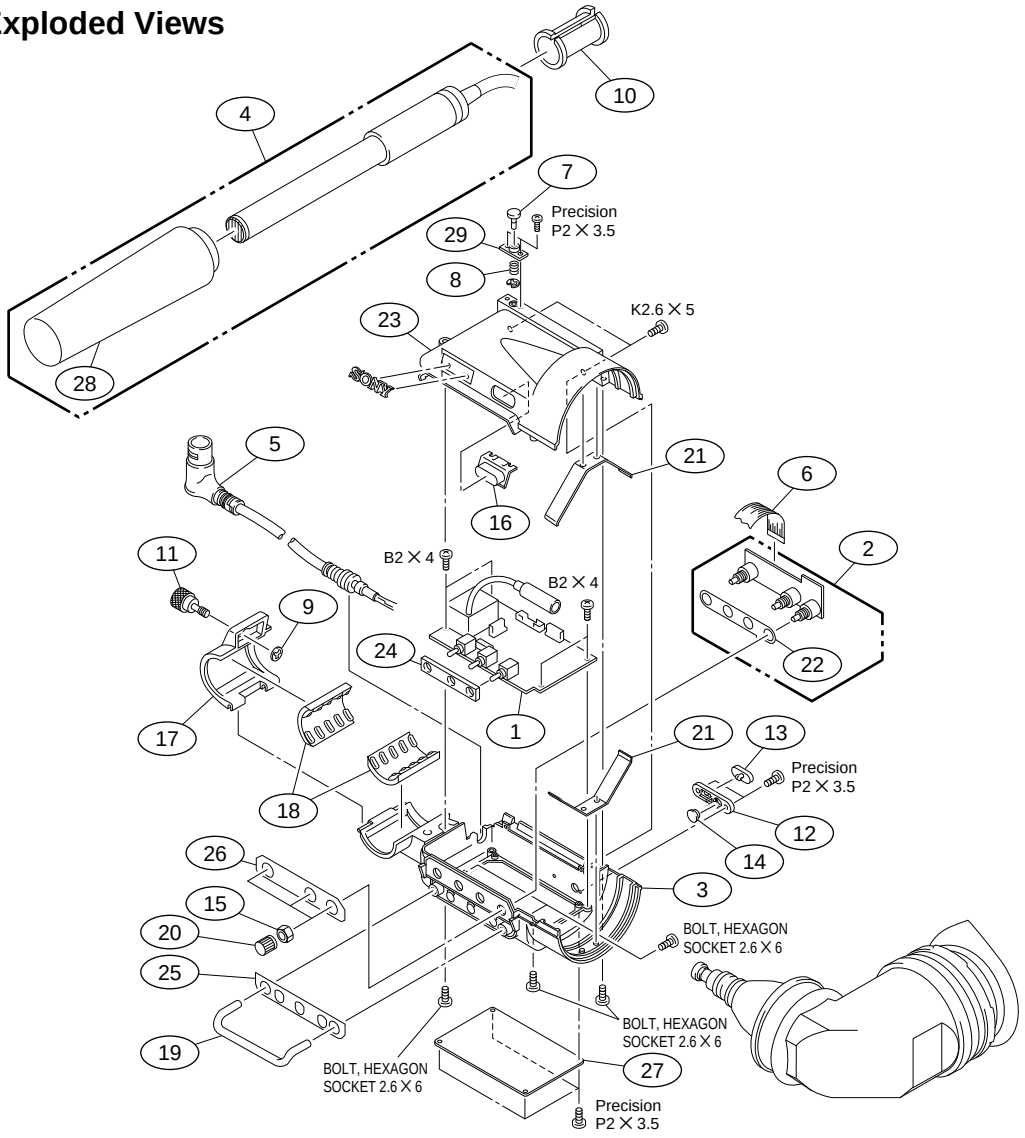
8. Adjustment point : ⊘RV3 (H-SIZE) /VF-67
   Specification : Minimize the distortion of center circle and the four circles at the corners of the resolution chart.



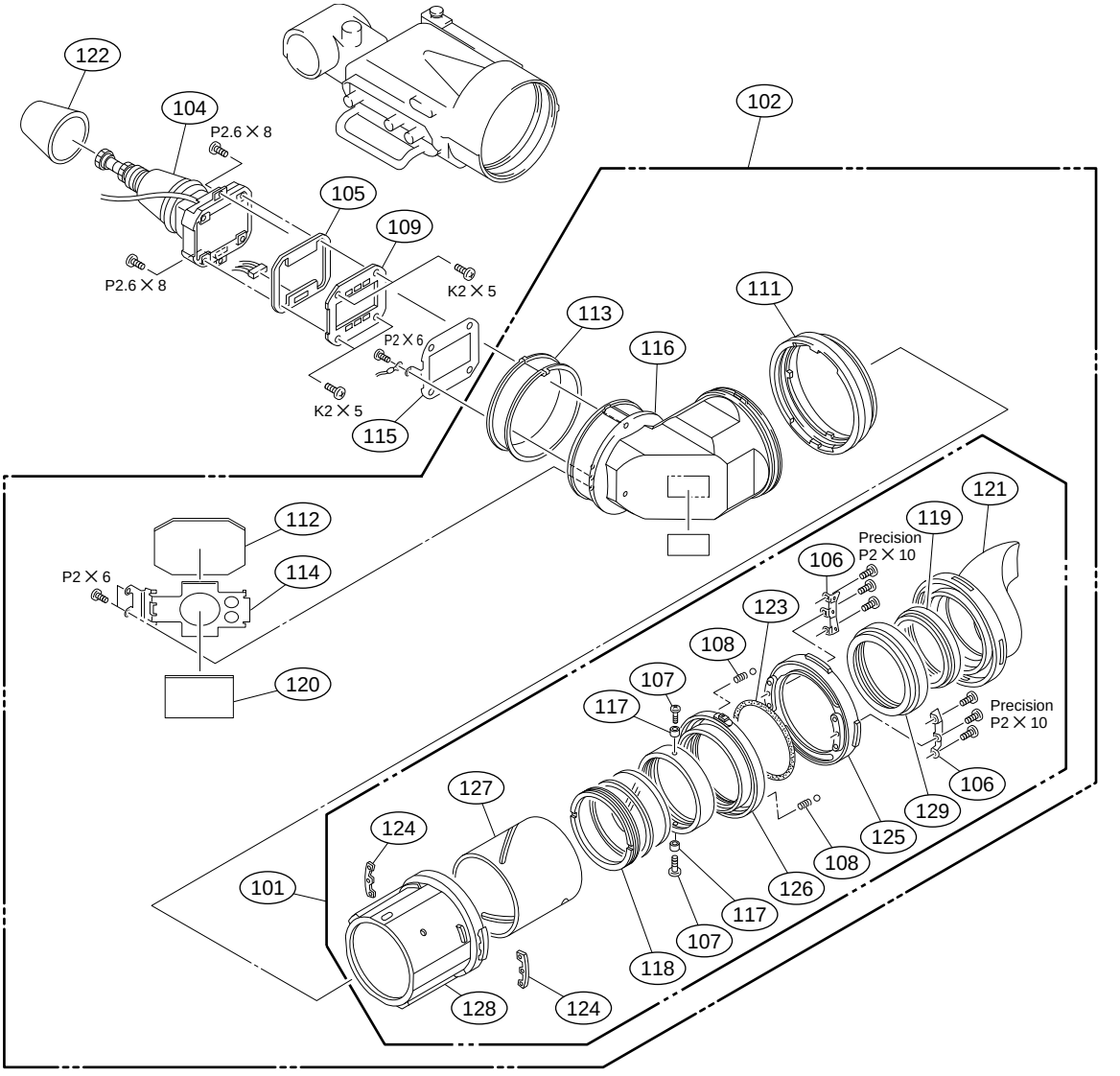
VF-67 BOARD (A SIDE)

Section 3
Spare Parts

3-1. Exploded Views



No.	Part No.	SP	Description
1	A-8277-105-A	o	MOUNTED CIRCUIT BOARD, VF-67
2	A-8277-107-A	o	MOUNTED CIRCUIT BOARD, VR-226
3	X-3678-575-1	o	CHASSIS B ASSY,BOTTOM(LOWER)
4	1-542-296-11	o	MICROPONE
5	1-777-028-21	s	CORD, CONNECTION (VF)
6	1-777-252-11	o	CABLE, FLAT (14 CORE)
7	2-277-457-00	s	KNOB, STOPPER
8	2-277-466-01	s	SPRING, COMPRESSION
9	3-165-904-01	s	WASHER, SCREW STOPPER
10	3-179-882-01	o	SPACER, MICROPHONE
11	3-657-657-00	s	SCREW (M5)
12	3-679-693-01	o	BASE,SLIDE
13	3-679-694-01	o	COVER,SLIDE
14	3-679-695-01	o	COVER,TALLY
15	3-685-104-01	s	NUT (M6), CONTROL
16	3-692-132-03	o	COVER,TALLY
17	3-692-134-01	o	MIC CLAMP
18	3-692-138-01	s	MIC CUSHION,RUBBER
19	3-692-147-01	o	GUARD BAR
20	3-692-154-02	s	KNOB,VF
21	3-697-152-01	o	SPRING,LEAF(2)
22	3-697-153-01	o	PLATE,GROUND(2)
23	3-697-155-01	o	CHASSIS,UPPER
24	3-697-156-01	o	CUSSHION,DRROP PROTECCTION(2)
25	3-697-157-01	o	LABEL,VF(B)
26	3-697-160-01	o	LABEL,VF(C)
27	3-697-161-01	o	LID,COVER
28	3-709-096-01	s	SCREEN, WINDOW
29	3-710-008-02	s	HOUSING, STOPPER
	7-621-772-18	s	SCREW, +B 2X4
	7-627-454-38	s	SCREW, PRECISION +K 2.6X5
	7-627-554-18	s	SCREW,PRECISION +P 2X3.5 TYPE1
	7-683-412-05	s	BOLT,HEXAGON SOCKET 2.6X6



No.	Part No.	SP	Description
101	A-8262-798-A	s	TUBE SUB ASSY, VF
102	A-8277-114-A	s	TUBE ASSY, VF
104	⚠ 1-251-439-11	s	CRT/DY ASSY, 2" WIDE
105	1-661-629-11	o	PRINTED CIRCUIT BOARD, LP-101
106	3-176-414-01	o	RETAINER, RING
107	3-335-207-01	s	SHAFT, MOTOR
108	3-573-150-00	o	SPRING, COMPRESSION
109	3-603-499-01	o	SPACER, MASK
111	3-692-136-01	o	FIXED RING
112	3-692-139-01	o	MIRROR(2)
113	3-697-151-01	o	RING,VF
114	3-697-154-01	o	HOLDER,MIRROR(3)
115	3-697-159-01	o	PLATE A,DISPLAY
116	3-697-167-01	o	VF TUBE(4)
117	3-722-485-01	o	ROLLER, SLIDE
118	3-722-492-01	o	HOLDER (B), LENS
119	3-723-069-02	o	PROTECTOR, MC
120	3-723-073-01	o	CUSHION, MIRROR

No.	Part No.	SP	Description
121	3-723-079-02	s	EYE CUP
122	3-725-220-02	o	TUBE (A), CRT
123	3-726-904-01	o	RING (MT), O
124	3-742-038-01	o	NUT (2), PLATE
125	3-742-052-03	o	HOLDER, EYE CUP
126	3-742-053-02	o	RING
127	3-742-054-01	o	TUBE
128	3-742-060-01	o	HOLDER, RING
129	3-742-075-01	o	HOLDER, FILTER
	7-627-452-38	s	SCREW,PRECISION +K 2X5
	7-627-553-78	s	SCREW,PRECISION +P 2X10
	7-671-158-01	s	BALL, STAINLESS (2.5 DIA)
	7-685-104-19	s	SCREW +P 2X6 TYPE2 NON-SLIT
	7-685-134-19	s	SCREW +P 2.6X8 TYPE2 NON-SLIT

3-2. Electrical Parts List

LP-101 BOARD

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-661-629-11	o	PRINTED CIRCUIT BOARD, LP-101
CN21	1-565-651-11	o	CONNECTOR 8P, MALE
D1	8-719-026-39	s	LED CL-150UR-CD, RED
D2	8-719-026-39	s	LED CL-150UR-CD, RED
D3	8-719-987-43	s	LED CL-150PG-CD, GRN
D4	8-719-026-16	s	LED CL-150D-CD, ORG
D5	8-719-026-39	s	LED CL-150UR-CD, RED
D6	8-719-026-16	s	LED CL-150D-CD, ORG

VF-67 BOARD

Ref. No. or Q'ty		Part No.	SP	Description
1pc		A-8277-105-A	o	MOUNTED CIRCUIT BOARD, VF-67
C1		1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C2		1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C3		1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C4		1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C5		1-104-911-11	s	TANTALUM 33uF 20% 10V
C6		1-104-913-11	s	TANTALUM 10uF 20% 16V
C7		1-163-038-00	s	CERAMIC 0.1uF 25V
C8		1-163-121-00	s	CERAMIC, CHIP 150PF 5% 50V
C9		1-107-686-11	s	TANTALUM 4.7uF 20% 16V
C10		1-104-913-11	s	TANTALUM 10uF 20% 16V
C11		1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C12		1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C13		1-115-581-11	s	TANTALUM 100uF 20% 16V
C14		1-163-038-00	s	CERAMIC 0.1uF 25V
C15		1-115-581-11	s	TANTALUM 100uF 20% 16V
C18		1-164-232-11	s	CERAMIC, CHIP 0.01uF 10% 100V
C19		1-163-243-11	s	CERAMIC, CHIP 47PF 5% 50V
C20		1-163-038-00	s	CERAMIC 0.1uF 25V
C21		1-163-038-00	s	CERAMIC 0.1uF 25V
C22		1-163-038-00	s	CERAMIC 0.1uF 25V
C23		1-163-038-00	s	CERAMIC 0.1uF 25V
C25	⚠	1-137-150-11	s	FILM 0.01uF 5% 100V
C26		1-163-011-11	s	CERAMIC 0.0015uF 10% 50V
C27		1-107-686-11	s	TANTALUM 4.7uF 20% 16V
C28		1-107-425-11	s	CERAMIC 470PF 10% 1KV
C29		1-115-339-11	s	CERAMIC 0.1uF 10% 50V
C30		1-128-405-11	s	ELECT 22uF 20% 50V
C31		1-104-823-11	s	TANTALUM 47uF 20% 16V
C32	⚠	1-136-683-11	s	FILM 0.0056uF 2% 100V
C33		1-104-913-11	s	TANTALUM 10uF 20% 16V
C35		1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C36		1-104-913-11	s	TANTALUM 10uF 20% 16V
C37		1-104-913-11	s	TANTALUM 10uF 20% 16V
C38		1-104-913-11	s	TANTALUM 10uF 20% 16V
C39		1-163-038-00	s	CERAMIC 0.1uF 25V
C40		1-163-038-00	s	CERAMIC 0.1uF 25V
C41		1-104-913-11	s	TANTALUM 10uF 20% 16V
C42		1-104-913-11	s	TANTALUM 10uF 20% 16V
C43		1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C44		1-163-019-00	s	CERAMIC, CHIP 0.0068uF 10% 50V
C45		1-104-913-11	s	TANTALUM 10uF 20% 16V
C46		1-104-547-11	s	FILM 0.0047uF 5% 16V
C47		1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C48		1-163-038-00	s	CERAMIC 0.1uF 25V
C49		1-163-038-00	s	CERAMIC 0.1uF 25V
C50		1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C51		1-135-091-00	s	TANTALUN, CHIP 1uF 10% 16V
C52		1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C53		1-163-017-00	s	CERAMIC, CHIP 0.0047uF 5% 50V
C54		1-128-397-21	s	ELECT 100uF 20% 16V
C55		1-163-125-00	s	CERAMIC, CHIP 220PF 5% 50V
C56		1-104-913-11	s	TANTALUM 10uF 20% 16V
C57		1-104-912-11	s	TANTALUM 3.3uF 20% 16V
C58		1-163-038-00	s	CERAMIC 0.1uF 25V
C60		1-128-394-11	s	ELECT 220uF 20% 10V
CN1		1-580-538-11	o	CONNECTOR, LY 18P, MALE
CN2		1-764-080-21	s	CONNECTOR (PC BOARD) 8P, FEMALE

(VF-67 BOARD)

Ref. No. or Q'ty		Part No.	SP	Description
CN3		1-569-529-21	o	HOUSING, 14P
CN4		1-564-004-11	o	CONNECTOR 5P, MALE
CN5		1-506-470-11	s	CONNECTOR 5P, MALE
D1		8-719-941-86	s	DIODE DAN202U
D2		8-719-941-86	s	DIODE DAN202U
D3		8-719-029-68	s	DIODE RD6.2UJN-T1
D4		8-719-820-41	s	DIODE 1SS302
D5		8-719-941-86	s	DIODE DAN202U
D6		8-719-054-32	s	DIODE ERA15-06
D7		8-719-900-95	s	DIODE V09G
D8		8-719-941-86	s	DIODE DAN202U
D9		8-719-901-19	s	DIODE V11N
D10		8-719-941-86	s	DIODE DAN202U
D11		8-719-941-86	s	DIODE DAN202U
D12		8-719-820-41	s	DIODE 1SS302
DL1		1-411-383-11	s	DELAY LINE 80ns
FBT1	⚠	Pending	s	TRANSFORMER, FLYBACK
HLC1	⚠	1-409-934-11	o	COIL, HORIZONTAL LINEARITY
IC2		8-759-209-54	s	IC TC4S01F
IC3		8-759-242-64	s	IC TC4W53F
IC4		8-759-510-71	s	IC BA10358F-E2
IC5		8-759-209-57	s	IC TC4S69F
IC6		8-759-422-97	s	IC LM334MX
IC7		8-759-394-26	s	IC LM4041EIM3-1.2
IC8	⚠	8-759-300-28	s	IC HA11423MP
IC9		8-759-209-57	s	IC TC4S69F
L1		1-410-380-31	s	INDUCTOR, CHIP 8.2uH
L2	⚠	Pending	s	COIL
LED1		8-719-989-53	s	LED CL-200HR-C-TSL, RED
Q1		8-729-028-91	s	TRANSISTOR DTA144EUA-T106
Q2		8-729-028-91	s	TRANSISTOR DTA144EUA-T106
Q3		8-729-905-38	s	TRANSISTOR 2SC4081T106R
Q4		8-729-905-23	s	TRANSISTOR 2SA1576-R
Q5		8-729-403-29	s	TRANSISTOR XN6435
Q6		8-729-024-56	s	TRANSISTOR 2SA1808-P
Q7		8-729-422-44	s	TRANSISTOR 2SK663
Q8		8-729-403-32	s	TRANSISTOR XN6534
Q9		8-729-105-37	s	TRANSISTOR 2SC3360
Q10		8-729-105-37	s	TRANSISTOR 2SC3360
Q11		8-729-905-38	s	TRANSISTOR 2SC4081T106R
Q12		8-729-905-23	s	TRANSISTOR 2SA1576-R
Q16		8-729-903-46	s	TRANSISTOR 2SB1132-P
Q17		8-729-013-08	s	TRANSISTOR 2SK1113
Q18		8-729-013-08	s	TRANSISTOR 2SK1113
Q19		8-729-905-38	s	TRANSISTOR 2SC4081T106R
Q20		8-729-905-23	s	TRANSISTOR 2SA1576-R
Q21		8-729-905-38	s	TRANSISTOR 2SC4081T106R
Q22		8-729-905-38	s	TRANSISTOR 2SC4081T106R
Q23		8-729-905-23	s	TRANSISTOR 2SA1576-R
Q24		8-729-013-08	s	TRANSISTOR 2SK1113
Q25		8-729-013-08	s	TRANSISTOR 2SK1113
R1		1-218-707-11	s	METAL, CHIP 4.3K 0.50% 1/16W
R2		1-218-680-11	s	METAL, CHIP 330 0.50% 1/16W
R3		1-218-714-11	s	METAL 8.2K 0.5% 1/16W

(VF-67 BOARD)

Ref. No. or Q'ty		Part No.	SP	Description
R4		1-218-899-11	s	METAL 150K 0.5% 1/16W
R5		1-218-692-11	s	METAL 1K 0.5% 1/16W
R6		1-218-851-11	s	METAL 1.5K 0.5% 1/16W
R8		1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R9	⚠	1-218-700-11	s	METAL 2.2K 0.5% 1/16W
R10		1-218-732-11	s	METAL 47K 0.5% 1/16W
R11	⚠	1-218-700-11	s	METAL 2.2K 0.5% 1/16W
R12	⚠	1-218-700-11	s	METAL 2.2K 0.5% 1/16W
R13	⚠	1-218-700-11	s	METAL 2.2K 0.5% 1/16W
R15		1-216-794-11	s	METAL, CHIP 5.6 5% 1/16W
R16		1-211-977-11	s	METAL 22 0.5% 1/16W
R17		1-218-716-11	s	METAL 10K 0.5% 1/16W
R18		1-218-724-11	s	METAL 22K 0.5% 1/16W
R19		1-218-714-11	s	METAL 8.2K 0.5% 1/16W
R20		1-218-684-11	s	METAL 470 0.5% 1/16W
R21		1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R22		1-218-708-11	s	METAL, CHIP 4.7K 0.50% 1/16W
R23		1-218-722-11	s	METAL 18K 0.5% 1/16W
R24		1-218-684-11	s	METAL 470 0.5% 1/16W
R25		1-218-676-11	s	METAL 220 0.5% 1/16W
R26		1-218-676-11	s	METAL 220 0.5% 1/16W
R27		1-218-851-11	s	METAL 1.5K 0.5% 1/16W
R28		1-218-668-11	s	METAL 100 0.5% 1/16W
R29		1-218-704-11	s	METAL, CHIP 3.3K 0.50% 1/16W
R30		1-218-716-11	s	METAL 10K 0.5% 1/16W
R31		1-218-829-11	s	METAL 180 0.5% 1/16W
R32		1-218-680-11	s	METAL, CHIP 330 0.50% 1/16W
R33		1-218-708-11	s	METAL, CHIP 4.7K 0.50% 1/16W
R34		1-218-680-11	s	METAL, CHIP 330 0.50% 1/16W
R35		1-218-660-11	s	METAL 47 0.5% 1/16W
R36		1-218-710-11	s	METAL 5.6K 0.5% 1/16W
R37		1-218-698-11	s	METAL, CHIP 1.8K 0.50% 1/16W
R38		1-218-716-11	s	METAL 10K 0.5% 1/16W
R39		1-218-724-11	s	METAL 22K 0.5% 1/16W
R40		1-218-668-11	s	METAL 100 0.5% 1/16W
R41		1-216-671-11	s	METAL, CHIP 6.8K 0.5% 1/10W
R42		1-208-806-11	s	METAL 10K 0.5% 1/10W
R43		1-216-863-11	s	METAL, CHIP 3.3M 5% 1/16W
R44		1-216-863-11	s	METAL, CHIP 3.3M 5% 1/16W
R45		1-216-863-11	s	METAL, CHIP 3.3M 5% 1/16W
R46	⚠	1-218-700-11	s	METAL 2.2K 0.5% 1/16W
R47		1-218-889-11	s	METAL 56K 0.5% 1/16W
R48		1-218-732-11	s	METAL 47K 0.5% 1/16W
R49	⚠	1-218-883-11	s	METAL 33K 0.5% 1/16W
R54		1-218-692-11	s	METAL 1K 0.5% 1/16W
R55	⚠	1-218-883-11	s	METAL 33K 0.5% 1/16W
R56		1-218-708-11	s	METAL, CHIP 4.7K 0.50% 1/16W
R58	⚠	1-218-883-11	s	METAL 33K 0.5% 1/16W
R59		1-218-722-11	s	METAL 18K 0.5% 1/16W
R60		1-218-724-11	s	METAL 22K 0.5% 1/16W
R61		1-218-722-11	s	METAL 18K 0.5% 1/16W
R62		1-218-704-11	s	METAL, CHIP 3.3K 0.50% 1/16W
R63		1-218-724-11	s	METAL 22K 0.5% 1/16W
R64		1-218-724-11	s	METAL 22K 0.5% 1/16W
R65	⚠	1-218-716-11	s	METAL 10K 0.5% 1/16W
R67		1-218-740-11	s	METAL 100K 0.5% 1/16W
R68		1-218-692-11	s	METAL 1K 0.5% 1/16W
R69		1-218-716-11	s	METAL 10K 0.5% 1/16W
R70		1-218-720-11	s	METAL 15K 0.5% 1/16W

(VF-67 BOARD)

Ref. No. or Q'ty		Part No.	SP	Description
R71		1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R73		1-218-692-11	s	METAL 1K 0.5% 1/16W
R74		1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R75		1-216-133-00	s	METAL, CHIP 3.3M 5% 1/10W
R76		1-216-133-00	s	METAL, CHIP 3.3M 5% 1/10W
R77		1-216-133-00	s	METAL, CHIP 3.3M 5% 1/10W
R78		1-218-740-11	s	METAL 100K 0.5% 1/16W
R79		1-216-864-11	s	METAL, CHIP 0 5% 1/16W
R80		1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R81		1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R82		1-216-309-00	s	METAL, CHIP 5.6 5% 1/10W
R85		1-216-853-11	s	METAL, CHIP 470K 5% 1/16W
R86		1-218-692-11	s	METAL 1K 0.5% 1/16W
R87		1-218-873-11	s	METAL 12K 0.5% 1/16W
R88		1-218-881-11	s	METAL 27K 0.5% 1/16W
R89		1-218-716-11	s	METAL 10K 0.5% 1/16W
R90		1-218-714-11	s	METAL 8.2K 0.5% 1/16W
R91		1-218-668-11	s	METAL 100 0.5% 1/16W
R92		1-218-724-11	s	METAL 22K 0.5% 1/16W
R93		1-218-670-11	s	METAL 120 0.5% 1/16W
R94		1-218-716-11	s	METAL 10K 0.5% 1/16W
R95		1-218-736-11	s	METAL 68K 0.5% 1/16W
R96		1-218-740-11	s	METAL 100K 0.5% 1/16W
R97		1-216-857-11	s	METAL, CHIP 1M 5% 1/16W
R98		1-218-873-11	s	METAL 12K 0.5% 1/16W
R99		1-218-714-11	s	METAL 8.2K 0.5% 1/16W
R100	⚠	1-218-883-11	s	METAL 33K 0.5% 1/16W
R101	⚠	1-218-700-11	s	METAL 2.2K 0.5% 1/16W
R102		1-218-752-11	s	METAL 330K 0.5% 1/16W
R103		1-218-730-11	s	METAL 39K 0.5% 1/16W
R104		1-218-710-11	s	METAL 5.6K 0.5% 1/16W
R105		1-218-716-11	s	METAL 10K 0.5% 1/16W
R106		1-218-867-11	s	METAL 6.8K 0.5% 1/16W
R108		1-218-692-11	s	METAL 1K 0.5% 1/16W
R109		1-218-716-11	s	METAL 10K 0.5% 1/16W
R110		1-216-607-11	s	METAL, CHIP 15 0.50% 1/10W
R111		1-218-704-11	s	METAL, CHIP 3.3K 0.50% 1/16W
R112		1-218-708-11	s	METAL, CHIP 4.7K 0.50% 1/16W
R113		1-216-308-00	s	METAL, CHIP 4.7 5% 1/10W
R114		1-218-883-11	s	METAL 33K 0.5% 1/16W
R115		1-218-732-11	s	METAL 47K 0.5% 1/16W
R116		1-218-740-11	s	METAL 100K 0.5% 1/16W
R117		1-216-645-11	s	METAL, CHIP 560 0.5% 1/10W
R118		1-208-774-11	s	METAL 470 0.5% 1/10W
R119		1-216-603-11	s	METAL, CHIP 10 0.5% 1/10W
RV2		1-241-741-11	s	RES, ADJ, CERMET 50K
RV3		1-241-832-21	s	RES, ADJ, CERMET 5K
RV4		1-241-832-21	s	RES, ADJ, CERMET 5K
RV5		1-241-833-11	s	RES, ADJ, CERMET 10K
RV6		1-241-826-11	s	RES, ADJ, CERMET 100
RV7		1-241-832-21	s	RES, ADJ, CERMET 5K
RV8		1-241-838-11	s	RES, ADJ, CERMET 500K
RV9		1-241-832-21	s	RES, ADJ, CERMET 5K
RV10		1-241-828-21	s	RES, ADJ, CERMET 500
RV11		1-241-828-21	s	RES, ADJ, CERMET 500
RV12		1-241-832-21	s	RES, ADJ, CERMET 5K
RV13		1-241-826-11	s	RES, ADJ, CERMET 100
S1		1-762-488-11	s	SWITCH, TOGGLE

(VF-67 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
S2	1-762-020-11	s	SWITCH, TOGGLE
S3	1-762-489-11	s	SWITCH, TOGGLE
VDR1	1-806-497-00	s	VARISTOR ERZ-C05DK220

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VR-226 BOARD
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Ref. No.
or Q'ty  Part No.    SP Description

1pc      A-8277-107-A o MOUNTED CIRCUIT BOARD, VR-226
1pc      3-697-153-01 o PLATE,GROUND(2)

C1       1-104-823-11 s TANTALUM 47uF 20% 16V
C2       1-164-232-11 s CERAMIC, CHIP 0.01uF 10% 100V
C3       1-164-232-11 s CERAMIC, CHIP 0.01uF 10% 100V
C4       1-163-037-11 s CERAMIC, CHIP 0.022uF 10% 25V
C5       1-107-686-11 s TANTALUM 4.7uF 20% 16V

C6       1-135-160-21 s TANTALUM 15uF 20% 16V
C7       1-163-038-00 s CERAMIC 0.1uF 25V
C8       1-164-232-11 s CERAMIC, CHIP 0.01uF 10% 100V

CN11     1-569-529-21 o HOUSING, 14P

D1       8-719-989-53 s LED CL-200HR-C-TSL, RED
D2       8-719-989-53 s LED CL-200HR-C-TSL, RED

IC1      8-759-939-53 s IC BA225F-T2

Q1       8-729-028-91 s TRANSISTOR DTA144EUA-T106
Q2       8-729-028-91 s TRANSISTOR DTA144EUA-T106
Q3       8-729-402-19 s TRANSISTOR XN6501
Q4       8-729-402-19 s TRANSISTOR XN6501
Q5       8-729-422-12 s TRANSISTOR 2SK664

R1       1-216-615-11 s METAL, CHIP 33 0.5% 1/10W
R2       1-216-645-11 s METAL, CHIP 560 0.5% 1/10W
R3       1-216-673-11 s METAL, CHIP 8.2K 0.5% 1/10W
R4       1-208-814-11 s METAL 22K 0.5% 1/10W
R5       1-208-814-11 s METAL 22K 0.5% 1/10W

R6       1-208-814-11 s METAL 22K 0.5% 1/10W
R7       1-218-772-11 s METAL 680K 0.5% 1/10W
R8       1-208-822-11 s METAL 47K 0.5% 1/10W
R9       1-208-824-11 s METAL 56K 0.5% 1/10W
R10      1-216-295-91 s RES, CHIP 0

R11      1-208-822-11 s METAL 47K 0.5% 1/10W
R13      1-208-814-11 s METAL 22K 0.5% 1/10W
R14      1-208-774-11 s METAL 470 0.5% 1/10W
R15      1-208-822-11 s METAL 47K 0.5% 1/10W
R16      1-216-645-11 s METAL, CHIP 560 0.5% 1/10W

RV1      1-238-293-11 s RES, VAR CARBON 10K
RV2      1-238-290-11 s RES, VAR CARBON 1K
RV3      1-238-296-11 s RES, VAR CARBON 10K
RV4      1-241-269-11 s RES, ADJ, CERMET 500K



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FRAME
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Ref. No.
or Q'ty  Part No.    SP Description

 1pc  ⚠  1-251-439-11 s CRT/DY ASSY, 2" WIDE
 1pc     1-777-028-21 s CORD, CONNECTION (VF)
 1pc     1-777-252-11 o CABLE, FLAT (14 CORE)

HARNESS (LP)
(CN2/VF-67 board to CN21/LP-101 board)
  CN2    1-764-196-11 o HOUSING, 8P
   8pcs  1-695-215-11 o CONTACT, 1P AWG26-30
  CN21   1-565-652-11 o HOUSING, 8P
   8pcs  1-563-940-11 s CONTACT, AWG26-30
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3-3. Supplied Accessories

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Ref. No.
or Q'ty  Part No.    SP Description

   1pc   1-542-296-11 o MICROPHONE
   1pc   3-179-882-01 o SPACER, MICROPHONE
   1pc   3-709-096-01 s SCREEN, WINDOW
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Section 4
Semiconductor Pin Assignments

ここに記載されている半導体は，それぞれの機能を等価的に表したものです。　なお，互換性のない型名を併記していることがありますので，部品を交換するときは，Spare Partsの章を参照してください。
等価回路はＩＣメーカーのデータブックに従いました。

Semiconductors of which functions are equivalent are described here. For parts replacement, refer to the section of Spare Parts in this manual. The circuit diagram of each IC is obtained from the IC data book published by the manufacturer.

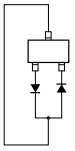
DIODE	PAGE
1SS302	4-2
CL-150D-CD	4-2
CL-150PG-CD	4-2
CL-150UR-CD	4-2
CL-150UR-CD-T	4-2
CL-200HR-C-TSL	4-2
DAN202U	4-2
RD6.2UJN-T1	4-2
V09C	4-2
V09G	4-2
V11N	4-2

TRANSISTOR	PAGE
2SA1576-R	4-2
2SA1808-P	4-2
2SA1808-PT106	4-2
2SB1132-P	4-2
2SC3360-N16	4-2
2SC4081T106R	4-2
2SK1113	4-2
2SK663	4-2
2SK664	4-2
DTA144EUA-T106	4-2
XN6435	4-2
XN6501	4-2
XN6534	4-2

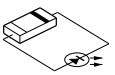
IC	PAGE
BA10358F-E2	4-3
BA225F-T2	4-3
HA11423MP	4-3
LM334MX	4-3
LM4041EIM3-1.2	4-3
TC4S01F	4-3
TC4S69F	4-3
TC4W53F	4-3

DIODE

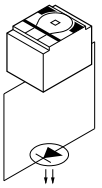
-TOP VIEW-



1SS302
1SS302-TE85L

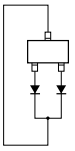


CL-150D-CD;ORANGE
CL-150PG-CD;GREEN
CL-150UR-CD;RED
CL-150UR-CD-T;RED
CL-150D-CD-T
CL-150PG-CD-T



CL-200HR-C-TSL;RED

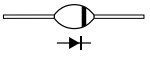
-TOP VIEW-



DAN202U
DAN202UT106

-TOP VIEW-

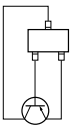
RD6.2UJN-T1



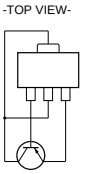
V09C
V09G
V11N

TRANSISTOR

-TOP VIEW-

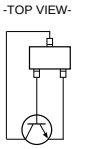


2SA1576-R
2SA1808-P
2SA1808-PT106
2SA1576T106R

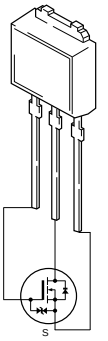


2SB1132-P
2SB1132-T100-QR

-TOP VIEW-

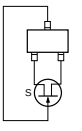


2SC3360-N16
2SC4081T106R
2SC3360-T1N17



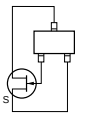
2SK1113

-TOP VIEW-



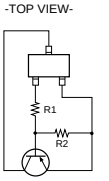
2SK663
2SK852-T1X3

-TOP VIEW-



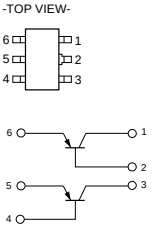
2SK664
2SK664-TX

-TOP VIEW-



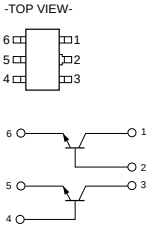
DTA144EUA-T106

-TOP VIEW-



XN6435
XN6435-TW

-TOP VIEW-



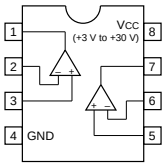
XN6501(MATSUSHITA)
XN6534
XN6501-TW
XN6534-TW

http://getMANUAL.com

BA10358F-E2(NS)
UPC358G2-E2

DUAL OPERATIONAL AMPLIFIERS

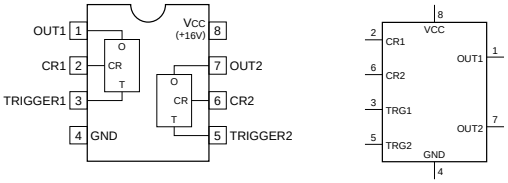
— TOP VIEW —



BA225F-T2(ROHM)FLAT PACKAGE

CR TIMER

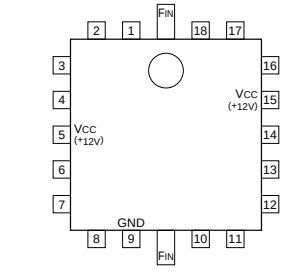
-TOP VIEW-

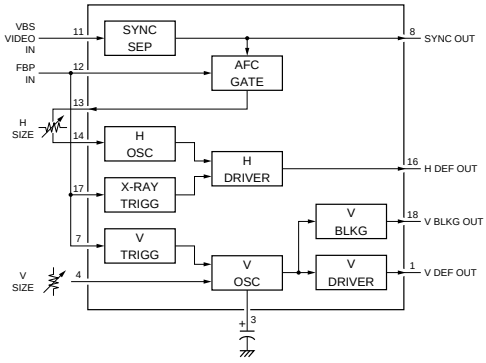


HA11423MP(HITACHI)FLAT PACKAGE

TV H/V SYNC SIGNAL PROCESSOR

-TOP VIEW-

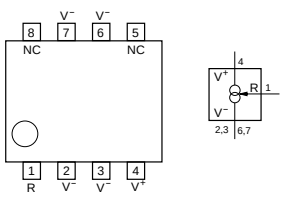




LM334MX(NS)FLAT PACKAGE

ADJUSTABLE CURRENT SOURCE

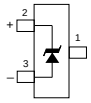
– TOP VIEW –



LM4041EIM3-1.2(NS)

SHUNT VOLTAGE REFERENCE

– TOP VIEW –



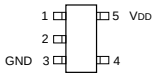
Reverse breakdown voltage = 1.225V

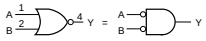
TC4S01F(TOSHIBA)CHIP PACKAGE
TC4S01F(TE85R)

C-MOS 2-INPUT NOR GATE

(SCALE 6/1)

—TOP VIEW—





$Y = \overline{A + B} = \overline{A} \cdot \overline{B}$

A	B	Y
0	0	1
0	1	0
1	0	0
1	1	0

0 ; LOW LEVEL
1 ; HIGH LEVEL

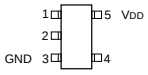
TYPE	VDD
4S01F	+3 to +18V
7S02F	+2 to +6V
7S02FU	
7SH02FU	

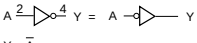
TC4S69F(TOSHIBA)CHIP PACKAGE
TC4S69F(TE85R)

C-MOS INVERTER

(SCALE 6/1)

—TOP VIEW—





$Y = \overline{A}$

A	Y
0	1
1	0

0 ; LOW LEVEL
1 ; HIGH LEVEL

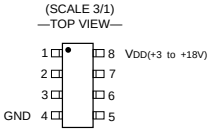
TYPE	VDD
7S04F 7SU04F 7SU04FU	+2 to +6V
4S69F 4SU69F	+3 to +18V
7SH04FU	+2 to +5.5V

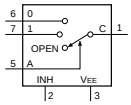
TC4W53F(TOSHIBA)CHIP PACKAGE(5.0 X 3.1)

C-MOS 2-CHANNEL MULTIPLEXER / DEMULTIPLEXER

(SCALE 3/1)

—TOP VIEW—



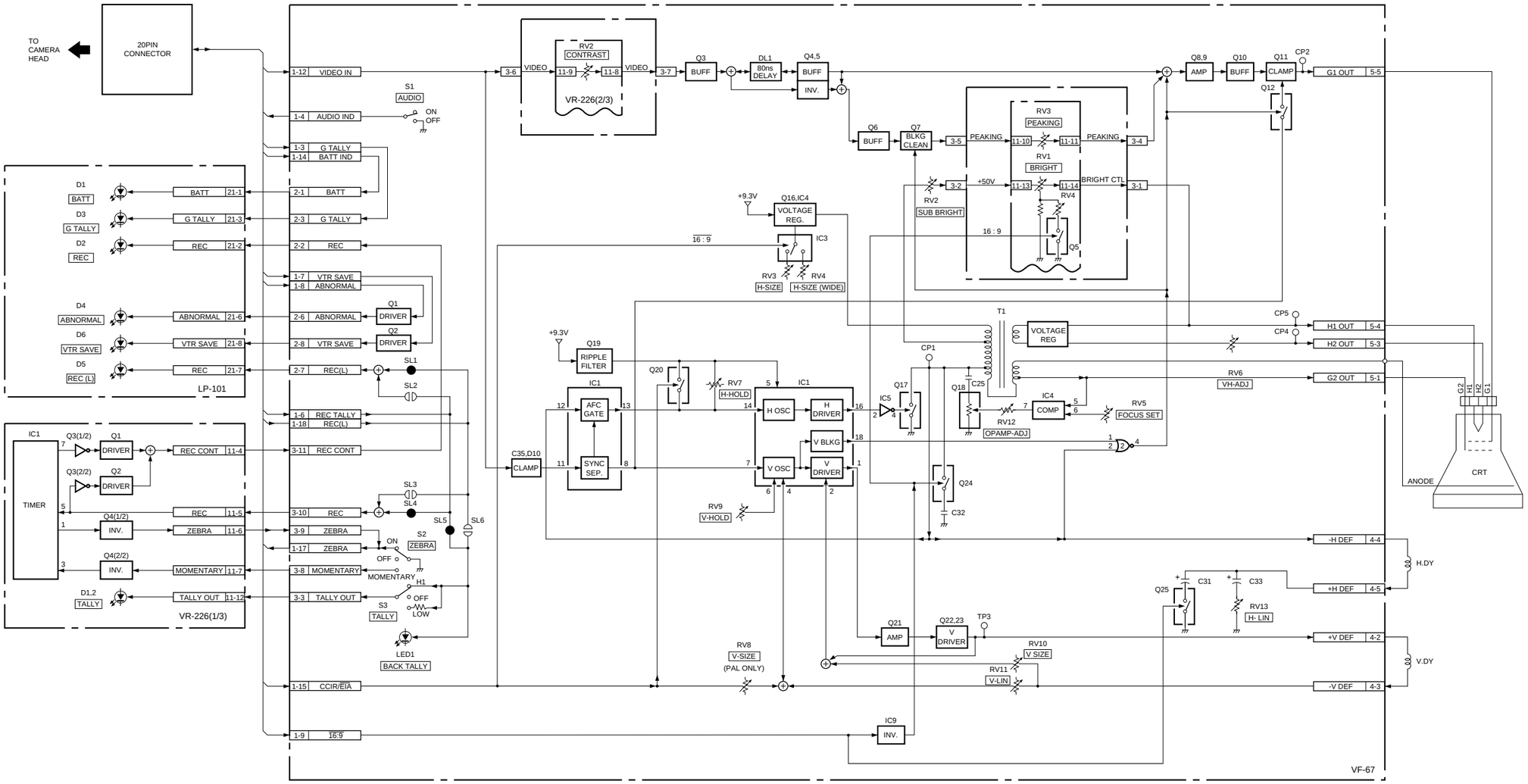


CONT.INPUT		ON CHANNEL
INH	A	
0	0	0
0	1	1
1	X	OPEN

0 ; LOW LEVEL
1 ; HIGH LEVEL
X ; DON'T CARE

Section 5
Diagrams and Board Layouts

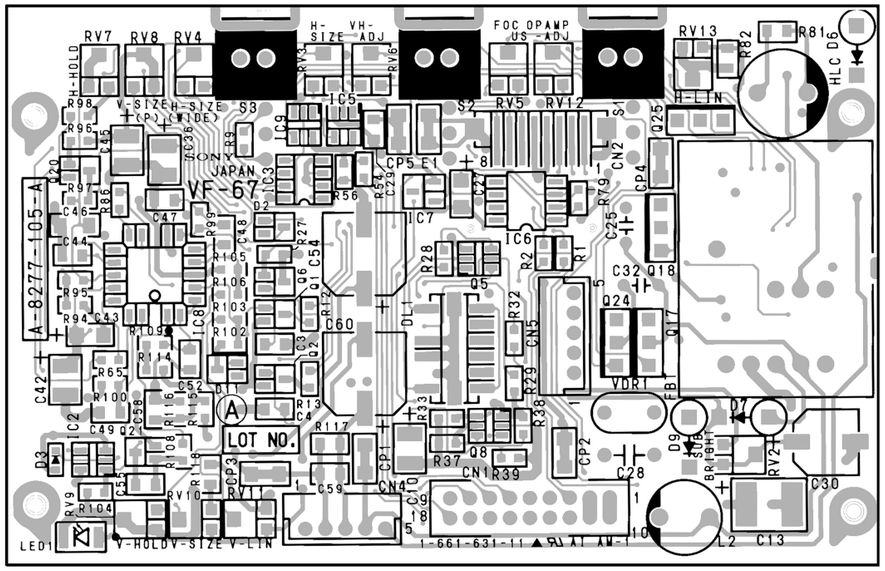
VF BLOCK



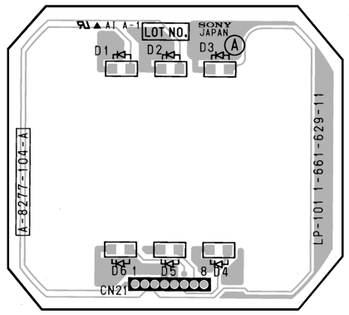
BVF-20-VIEW FINDER BLOCK#1/M

VF BLOCK
BVF-20W
BVF-20WCE

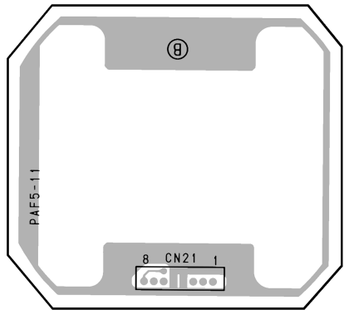
BOARD LAYOUTS



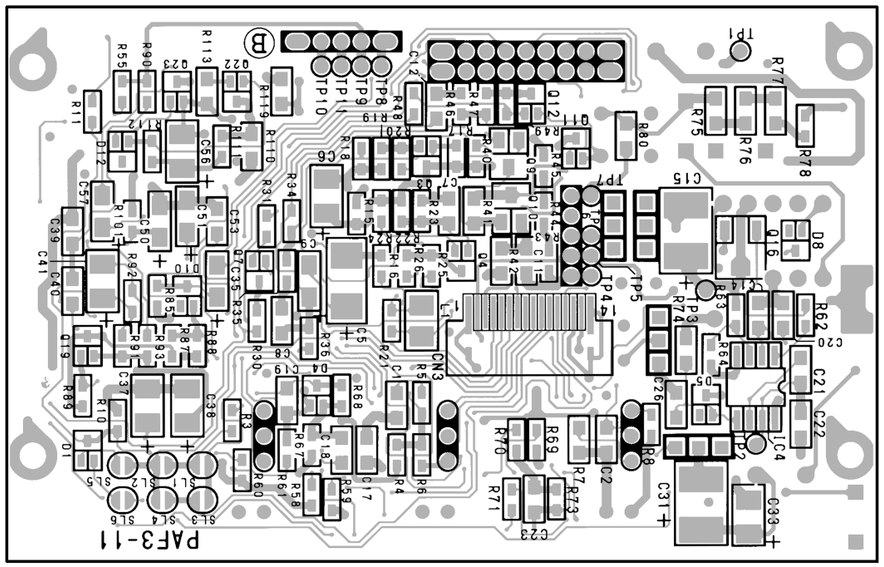
VF-67 - A SIDE -
1-661-631-11



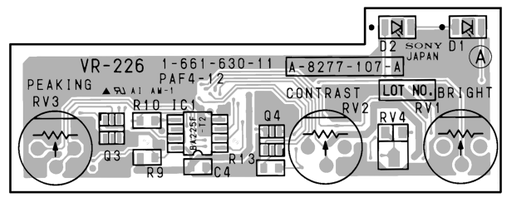
LP-101- A SIDE -
1-661-629-11



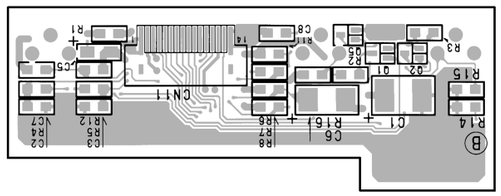
LP-101- B SIDE -
1-661-629-11



VF-67 - B SIDE -
1-661-631-11

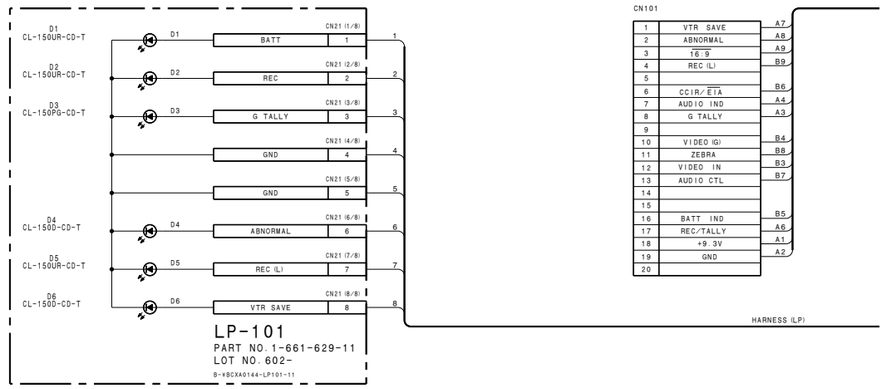


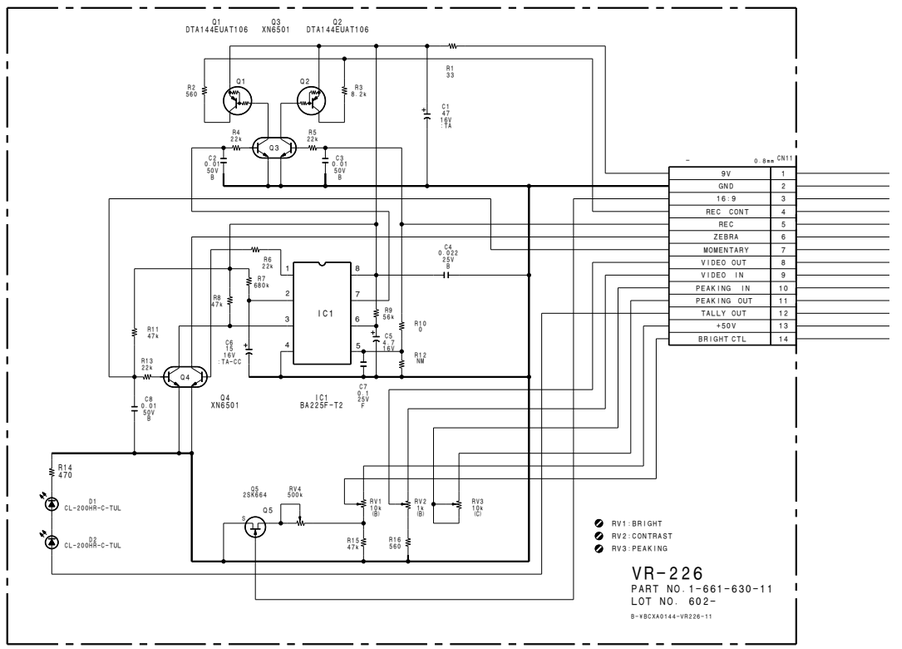
VR-226- A SIDE -
1-661-630-11



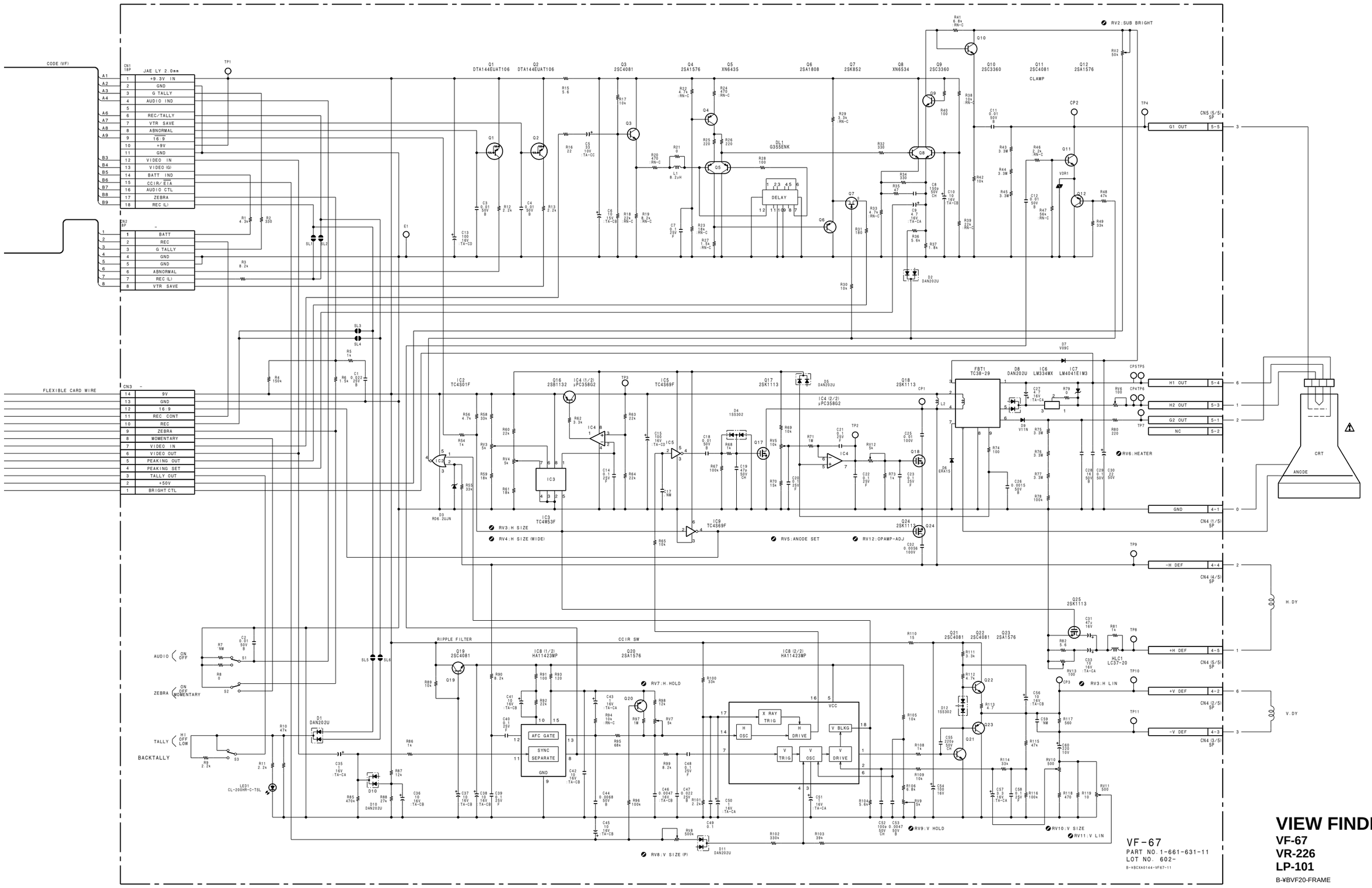
VR-226- B SIDE -
1-661-630-11

VIEW FINDER





VIEW FINDER VF-60 VR-199 LP-84/85



VIEW FINDER

VF-67
VR-226
LP-101

B-¥BVF20-FRAME

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BVF-20WCE (CE) J, E
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